

Workplace needs and experiences of university staff

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Abstract. Workplaces of universities are changing. The study analyzed and identified work, workplace needs and experiences of university staff at the beginning of a broad building renovation. The university staff was profiled with different tasks, work specific needs and space requirements. The facilities supported well independent, individual tasks, but less collaboration and teamwork. The identified problems were related to the quality of indoor air, temperature and acoustics. The staff participated in workplace design through workshops. They submitted a great number of feasible development ideas with regard to the future working and learning environment.

Keywords. Workplace, participation, user-experiences, university

1. Introduction and objectives

University campuses, academic work and workplaces are changing in many countries. Agreements concerning energy conservation and high property expenses drive universities to search for cost savings through efficient space utilization. As a result, energy and space efficiency become important objectives in renovations. However, energy-saving solutions and space efficiency must not deteriorate the quality of the indoor environment and well-being of users.

As university and its facilities is a heterogenic environment with the purpose of supporting the functions of the university and the needs of its users, i.e. staff and students, their satisfaction has become one of the focus areas in campus management (den Heijer, 2011). Universities strive for better quality of facilities and more flexible and intensive use of space, less space for individuals and more space to share. The actors responsible for university facilities need systematic knowledge of the users in order to design and renovate facilities for future (den Heijer, 2011). So far, there is only limited research on the workplaces needs and experiences of the staff, while most of the studies concern students.

In workplace design, the basic questions concern the future needs of the organization and the users, the requirements of the work, and the kind of space solutions that best supports the requirements. For this, systematic analysis is needed. In addition, a participatory process and methods are relevant when aiming at working environments that support fluent work processes, effective working and well-being of users.

This study applies the participatory ergonomics in the built environment (Haines et al., 2002). The purpose is to provide knowledge about user experiences of a university environment with regards to the functionality and space needs as well as the aspects of an indoor environment as a foundation for renovations and space planning. This case study focused on analyzing and identifying work, workplace needs and experiences of university

staff. The following research questions will be examined: Where the staff is working? What kind of work is performed in the facilities? How functional are the facilities evaluated by the university staff? How do they perceive the indoor environment and its developmental needs?

2. Context, materials and methods

The study was conducted in the beginning of a broad renovation of the Natural Science Building of a Finnish university. The building contains auditoriums, classrooms, laboratories, meeting rooms, offices, the faculty office, a library, employee facilities and storage rooms. It was built in 1969 and has six floors in 10,161 gross square meters. The objectives of the renovation were to optimize and to bring flexibility into space utilization, and to improve energy efficiency. The scope of the article is restricted to the planning phase and related milestone results of the ongoing renovation. Altogether 170 employees of the Faculty of Mathematics and Natural Sciences work in the building in research and teaching positions as well as administration. The faculty has more than 1,000 students.

The university staff was empowered in their workplace analysis and planning process. The participatory methods included the Work Environment and Well-being Survey, thematic interviews and four common workshops for the staff and the designers (Ruohomäki et al., 2013). This survey focused on the staff, because viewpoints of the students have been reported in previous surveys (Future Campuses, 2011).

The survey was used for assessing job content, work tasks, working places, and work-specific needs of the staff, functionality of premises, the problems and complaints associated with the indoor environment, perceived well-being, attitudes towards changes and ideas for improvements. It served as a basis for space planning before renovation. The digital survey was sent to the employees working at the site, of which 105 (62%) responded. Their average age was 41 years, 45% were females and 55% males. The researcher interviewed ten key persons of the university faculty about their workplace experiences, views on future of work and space requirements. The results were reflected in the participatory workshops with the users' of the premises, 20–28 persons at each workshop. The half-day workshops were dialogic and future-oriented.

3. Results

3.1 Workplaces and their use

The questionnaire data shows that the staff worked primarily in the university facilities, which they use in a versatile manner. Approximately 80% of the respondents estimated that they used university facilities for working for 31–40 hours per week. Fifty-three percent worked in an office room of their own, 23% shared a room with another person and 24% of the respondent shared a room with three or more persons. Auditoriums and lecturing rooms, laboratories as well as meeting rooms were actively used. Telework at home for two hours per week or less and only occasionally was typical for 53% of respondents; those in manager positions teleworked slightly more than others. Working in other environments outside the university campus was minimal, such as cafés, hotels or transport vehicles. Their work was not multi-locational nor mobile. According to the interviews, laboratory researchers in chemistry emphasized that their research could be done only in the laboratory settings of the university, while some mathematicians expressed that they could do mathematical thinking almost everywhere. Some biologists and geologists worked also in the field during the summer. They collected samples from nature, which were then examined and reported at the university premises.

3.2 Users' experiences of their work environment

The survey results showed that altogether 67% of respondents were satisfied with their present work environment as a whole, while 17% were dissatisfied. They were happy with the daylight and window views. The problem areas included the quality of indoor air, temperature and acoustics. Air quality was found to be unsatisfactory by 27% of respondents. When dissatisfaction was defined as experiencing a fair or great amount of discomfort, 20% of respondents were bothered by draught, 28% by too low temperatures and 32% by too high temperatures. 74% of respondents were dissatisfied with their possibility to alter the ventilation or temperature. Poor air quality was reported especially in laboratories during the summer. Acoustic problems were perceived in the administrative office and working rooms near the main corridors and doors. The administrative personnel with customer service tasks were critical towards their open plan office, because confidential client discussions were difficult to conduct.

3.3 Employee profiles and work contents

In profiling work tasks of the university staff, a factor analysis and hierarchical cluster analysis (SPSS software, PASW Statistics 18) were utilized. The profiling excluded employees with fewer than 10 weekly working hours (8 persons). Three characterizing factors were distinguished in the work contents: problem-focused tasks, coordination tasks and work autonomy. Problem-focused tasks were characterized by problem solving, complicated decision-making, generating ideas and the need for long-term concentration. Coordination work included alternating and overlapping tasks, interaction needs and organizing. Work autonomy meant the possibility to influence the scheduling of personal tasks and freedom in carrying them out. The work descriptions are not exclusive; work can be described on all three dimensions.

In profiling work tasks, different employee groups were identified. The profiling included the aforementioned work descriptions, the amount of co-operation and individual work as well as a broad characterization of the work (teaching, administration, research and management). This led into the formation of four groups of the university staff.

Group 1. ("office workers", n=12) The group was characterized by the emphasis on administrative tasks and the lack or paucity of research and teaching work. There were no managers in this group. The work was focused on coordination tasks. This group consisted mainly of office workers but included also some assisting laboratory staff.

Group 2. ("junior researchers", n=30) The group was characterized by research work, along with some teaching work. The work requirements were lower than in other researcher groups (groups 3 and 4) in both problem solving and coordination tasks and the work was less independent. There was more laboratory work than in other groups. This group included doctoral students, research assistants, teaching staff as well as library and office workers. This group did not include managers.

Group 3. ("advanced researchers", n=24) The group is similar to group 2 with the slight difference of emphasizing work contents (teaching, research, problem solving and coordination) and more independent work. The group can be construed as more advanced and working with more demanding tasks. This group included lecturers and researchers in different stages (doctoral students, doctoral researchers). Some also had managerial tasks.

Group 4. ("senior researchers", n=18) This group has the most diverse tasks, including teaching, research and administrative tasks. The work was characterized by both problem solving and coordination tasks as well as independence. Almost everyone in this group had a managerial position. The group consisted of professors, researchers, research station workers and a few other individual employees.

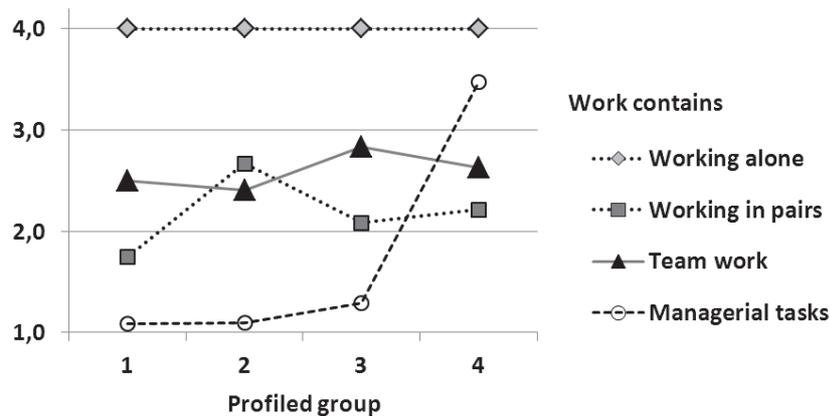


Figure 1. Working alone, in pairs, in teams and managerial tasks in different work profiles. Scale: 1 not at all, 2 monthly, 3 weekly, 4 daily or almost daily. The figures shown are average values.

Figure 1 depicts the groups according to their work contents. What is remarkable in the results is that working alone is not a differentiating factor: all the respondents worked alone and performed individual tasks daily. In addition, 17% worked in pairs and 20% in teams on a daily basis.

3.4 Functionality of the premises and space needs

The premises were viewed as suitable and appropriate for carrying out tasks by 79% of respondents. They reported that were able to work efficiently at the work site. They felt being part of the work community and university's scientific community.

The premises were also assessed from the perspective of different tasks (Figure 2). Work profile groups 2 and 4 showed more discontent towards the functionality of the facilities than other groups. Eighty-two percent of respondents felt that the facilities supported independent, individual working. The interviewees emphasized the individual tasks of researchers and teachers that demand deep concentration, such as reading, writing, calculating and problem solving. Individual rooms were considered important by offering possibilities to focus on research work, preparing lectures and guiding students. The need for quiet workspaces was emphasized also regarding the future premises. Some professors told that if such spaces were not available, the personnel would move to work at home, which might weaken collaboration in research teams and with students.

The facilities were considered quite functional in terms of co-operation and reaching co-workers. But only half of the respondents considered the facilities supportive for interaction and team work. Group 1 felt that the premises did not support enough interaction. Interviews disclosed inadequate and rundown meeting spaces and their vast demand throughout the faculty. The staff needs modern spaces for video- and teleconferences as well as face-to-face meetings.

The premises were found to be supportive for teaching and learning by 42%. This evaluation was connected to the amount of teaching work, because 60% of those teaching at least weekly felt that the premises supported teaching. It is possible that those who teach less often found the use of teaching spaces less convenient because of the lack of routine. The teaching work also differs between faculties. Interviewees expressed a need for more spaces for small group learning.

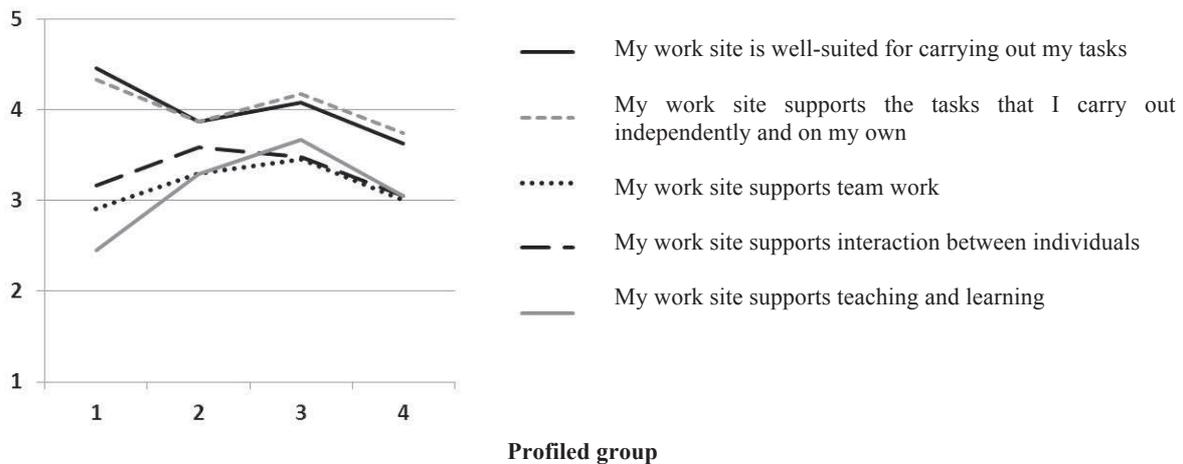


Figure 2. Evaluation of the functionality of workspaces from the perspective of performing work tasks in different work profiles. Scale: 1 I fully disagree, 5 I fully agree. The figures shown are average values.

3.5 Perceptions of forthcoming changes and ideas for improvements

The questionnaire results showed that the staff was quite positive of the renovation project and its objectives. The anticipated impacts of the renovation on the functionality and comfort of the work environment as well as increase in energy efficiency were positive. To the open question of the survey “Which improvement in your work environment would be most essential to the work flow and your contentment?” the staff generated 129 proposals in their work environment. The proposals were categorized under different topics (number is in parenthesis) e.g.: improving indoor air (58), locating functions close to each other so that they serve work processes and faculty functions (12), private space or own room (11), ergonomic workstations (8), collaboration space (6), modern laboratories (7), teaching and learning spaces (6).

The interviewees hoped that the new facilities would support fluent work processes, collaboration in scientific community and provide privacy for individual research work. In addition, good indoor air and acoustics were considered to be essential. The interviewed persons experienced uncertainty about forthcoming move to temporary facilities and extra work related to it. In the workshops, the staff generated together ideas to increase space efficiency and flexibility in using the workplaces, e.g. in terms of shared laboratories, common ICT-rooms and meeting spaces, and moving into smaller rooms. The participants perceived the workshops useful to prepare for moving in the temporary facilities and to promote idea generation for new workplace solutions (Ruohomäki et al., 2013).

4. Discussion and Conclusion

This study offers evidence-based knowledge about the content of academic work, workspace needs and experiences of the university staff as a foundation for ongoing renovations and space planning.

The study suggests that facilities must be functional to support both individual work and collaborative work. At the target university, natural scientific work was characterized by problem solving and coordination tasks as well as autonomy and an abundance of individual work. The majority of respondents were satisfied with the functionality of workspaces: they support individual tasks best, but were less impressive in supporting collaboration and teamwork. For future, creating spaces for exchange of ideas between

people and knowledge creation is critical both for working and learning.

The results depicting work contents can to some extent be generalized to other universities' natural scientific research, teaching and assisting work. However, tasks, research and teaching practices as well as tools and workspace needs in other fields of science may differ greatly from natural science.

The study showed that development needs in the indoor environment were associated with air quality, temperature and acoustics. The quality of indoor air is an important factor for overall satisfaction among the users of the university premises (Kärnä et al., 2011). According to the survey conducted in ten universities in Finland, the indoor air quality was the most important feature of the buildings (Future Campuses, 2011).

In campus planning, there is a trend from cellular offices towards non-territorial and shared offices (den Heijer, 2011) that are originally created to meet the needs of work that is not bound to a specific place and time. Against expectations, at this research location the university staff worked primarily in the university facilities in own rooms; their work was not multi-locational or mobile. In the light of this study, new office solutions may not be directly applicable to all university facilities. The workspaces are intended for users and must be planned so that they are compatible with their work. One workspace solution is not suitable for all user groups and duplicating workspace solutions in different contexts without critique must be approached with care.

The participatory methods of this study can be utilized to design modern working and learning environments to meet the needs of the staff and to support their work. Work analysis and participatory design approach (Haines et. al. 2002) are needed in finding functional and energy-efficient solutions for future working and learning environments.

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References

- den Heijer, A. (2011). *Managing the university campus. Information to support real estate decisions*. Delft: Eburon Academic Publishers.
- Future Campuses (2011). *Survey results of ten universities*. University Properties of Finland Ltd. Retrieved from <http://www.sykoy.fi/binary/file/-/id/3/fid/238>
- Haines, H., Wilson, J.R., Vink, P. & Koningsveld, E. (2002). Validating a framework for participatory ergonomics (the PEF). *Ergonomics* 45:4, 309–327.
- Kärnä, S., Julin, P. & Nenonen, S. (2013). User satisfaction on a university campus by students and staff. *Intelligent Building International*, 5:2, 69-82.
- Ruohomäki, V., Lahtinen, M. & Joutsiniemi, A. (2013). Participatory design when renovating premises – process and methods. In *Electronic Proceedings of the NES2013 Conference: Ergonomics for Equality*, Nordic Ergonomics & Human Factors Society, Reykjavik, Island, 11.-14.8.2013.